

REMARKS

Claims 1, 2 and 4-11 remain pending in this application. Claim 3 has been canceled without prejudice or disclaimer. Claims 4, 5 and 7 have been amended to delete improper dependencies. No new matter has been introduced by these amendments.

Abstract

The abstract was objected to, but the Examiner never identified any specific objection to the Abstract on page 48. Other than several form paragraphs of what an abstract should or should not contain, no specific problem was identified. Nevertheless, in an attempt to remedy an unidentified problem, the abstract has been amended to delete the second paragraph and to replace the term "METSUKE" with the English language equivalent. Accordingly, this objection should be withdrawn.

Claim Objections

Claims 3-8 have been objected to as being improper dependent claims. Claim 3 has been canceled and claims 4, 5 and 7 have been amended to delete the improper multiple dependency. Accordingly, these objections should be withdrawn.

Claim Rejections

Claims 1-3 and 9-11 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kamoto et al. (Kamoto) (JP 2003-220660) in view of Bessey et al. (Bessey) (Solid Phase Processing of Polymers), Fourné (Synthetic Fibers), and Mehta (Polymer Handbook). The Office argues that Kamoto teaches a layered nonwoven laminate formed from spun-bound and melt-blown layers (0003 and 0024), and teaches various methods of forming fiber intrusion (0020). The Office observes that Kamoto

also teaches that fiber diameter may range from about 1-30 microns, preferably 2-10 microns (0022).

As to claims 1-3, and claims dependent thereon, neither Kamoto nor any of the other references relied on teach or in any way suggest the relationship between the diameter of fibers (from 7-20 microns) in the upper and lower thermoplastic fiber layers, and the diameter of the fibers (5 microns or less) in the at least one intermediate plastic fiber layer as recited in claim 1 and all claims dependent thereon. These size ranges are mutually exclusive. The prior art does not teach or otherwise provide any reason to observe this recited relationship, or appreciate its importance in achieving the recited intrusion index. As noted at page 15, lines 7-25 of the present specification, the smaller average diameter of the fibers in the intermediate layer contributes to making the intrusion index higher. A laminated fabric with an intrusion index according to the present invention has a number of favorable characteristics and advantages as described in the specification at page 9, line 29 to page 10, line 6 and the Examples, for example. For at least this reason, the prior art fails to establish a prima facie case of obviousness.

The Office further takes the position that although the prior art does not explicitly describe the recited characteristics of intrusion index and bulk density, these properties are inherent in the fabric because embodiments of presumably the Kamoto disclosure are substantially identical with corresponding polymeric materials, fiber diameter, and fabric weight used in the embodiments of the present invention. The prior art teachings do not address an intrusion index or a bulk density, and there is no basis to conclude that the prior art laminates would have these characteristics within the value ranges

recited in claims 1, 2, and 4-9, particularly since the prior art does not teach the desirability of maintaining the diameters of the fibers for the respective layers within the recited ranges. While it may be an accurate legal principle that it is generally obvious to determine an optimum value for a result effective variable in a known process, there is no teaching or suggestion in the prior art that either the relationship of fiber diameters or intrusion index are result effective variables. Accordingly, as the prior art fails to establish a prima facie case of obviousness, this rejection should be withdrawn as to claims 1, 2 and 4-8.

Claims 9-11 are directed to a method of producing a high tenacity nonwoven fabric that is distinguished from the applied prior art by reciting characteristics of the fibers used (e.g., crystallinity from 15 to 40% and solution viscosity) and operating parameters of the thermocompressive bonding step (e.g., temperature and pressure) that are not taught or suggested by the prior art. Although these conditions may be choices individually available to persons skilled in the art, there is no reason for a person skilled in the art to combine them in the way that are recited in these claims. As the prior art fails to establish a prima facie case of obviousness, this rejection should be withdrawn as to claims 9-11.

Prompt and favorable reconsideration is requested.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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